

**ABSTRACT OF THE DISCLOSURE**

A sensor element is for detecting DNA single strands which are possibly contained in an analyte. The sensor element includes a substrate and at least two electrodes in and/or on the substrate. In a surface area of the substrate, catcher molecules are immobilized and are adapted to hybridize to DNA single strands that are possibly contained in an analyte. The DNA single strands include a label that has dielectric properties that are different from those of the analyte. The electrodes are coupled to a detection device for detecting a change in the capacitative portion of the impedance between the electrodes due to a label that is present in an area surrounding the electrodes as a result of the hybridization event.